

This document uses various technical terms that require a clear definition. This Glossary provides the needed definitions. This Glossary, however, does not include those terms already defined under § 990.30 of the OPA regulations.

*Accuracy (data):* The closeness of a measured value to its true value.

*Acute:* An effect in which the organism of interest is exposed to the contaminant such as oil for only a small portion of its life cycle (i.e., generally less than four days). Typical effects endpoints include mortality or immobility.

*Analyte:* The specific component measured in a chemical analysis.

*API Gravity:* A scale of specific gravities for petroleum fluids. Based on a simple inverse relationship with specific gravity.

*Benthic:* Pertaining to the bottom of a body of water.

*Binding Proteins:* Protein structures in organisms that serve as host biomarkers to potentially toxic substances resulting in select stress responses.

*Bioaccumulation:* The process by which a contaminant such as oil is taken up by organisms directly through the physical exposure pathway or through consumption of food containing the contaminated substance. Bioaccumulation incorporates the concepts of bioconcentration and biomagnification.

*Bioavailability:* The tendency of a contaminant such as oil to partition in a form conducive to uptake by organisms.

*Bioconcentration:* The process by which a contaminant such as oil is directly taken up (i.e., by absorption only) from water and is accumulated to levels greater than those found in the surrounding water.

*Biodegradation:* The process of degradation of a contaminant such as oil because of its use as a food source for certain microorganisms. This process is limited to a great extent by temperature, nutrients, and oxygen availability.

*Biological (Natural) Resource:* The resource referred to in section 1001(20) of OPA as fish, wildlife, and biota. Fish and wildlife include marine and freshwater aquatic and terrestrial species; game, nongame and commercial species; and species listed as endangered or threatened under Federal or State law. Biota encompasses shellfish, terrestrial, and aquatic plants and other living organisms not otherwise listed in this definition.

*Biomagnification:* The increase in tissue concentrations of a bioaccumulated chemical substance such as oil as it passes up through the trophic levels.

*Biomarker:* A biochemical, physiological, or histological indicator of either exposure to, or effects of, xenobiotic contaminants such as oil at the suborganismal or organismal level.

*Blank:* A QA sample of a pure substance that is used to measure the contribution of analytes from all laboratory sources external to the sample.

*Boiling Point:* The temperature at which the vapor pressure of a specified liquid equals the atmospheric pressure.

*Brackish:* Pertaining to water with a low salt content, usually up to five parts per thousand during the period of average annual low flow.

*By-product:* A substance produced as a result of the transformation of the original product.

*Chronic:* An effect in which the organism of interest is exposed to the contaminant such as oil for a significant stage of its life cycle or the entire life cycle (i.e., generally weeks to years depending on the reproductive life cycle of the organism). Typical effects endpoints include reproductive, growth, or development impairment as well as behavioral changes.

*Community (Biological):* An assemblage of populations that live in an environment and interact with one another forming a distinctive living system with its own composition, structure, environmental relations, development, and function.

*Comparable (data):* A measure of confidence in being able to contrast one data set with another.

*Completeness:* The amount of valid data obtained (i.e., that met QA acceptance criteria) compared to the planned amount.

*Composite:* A homogenized collection of distinct samples.

*Control:* The condition where all variables, except the presence of the oil, are the same and can be manipulated, measured, and monitored.

*Data:* Measures related to the oil discharge and environmental setting.

*Depuration:* A process that results in elimination of a substance from organisms.

*Dispersion:* A process that results from the incorporation of small particles or globules of oil (ranging in size from  $< 0.5 \mu\text{m}$  to several mm) into the water column and can be maintained by continuous agitation (i.e., storms or turbulent waters).

*Dissolution:* The process of dissolving oil in the medium of concern, usually water. Dissolution is typically slow due to the slightly soluble hydrocarbons and various mineral salts present in the oil.

*Downwelling:* The physical process where surface waters sink due to a higher density relative to surrounding waters.

*Duplicate:* A second analysis made on the same sample or second sample.

*Ecosystem:* The biological community and its environment that, together, function as a system of complimentary relationships, with the transfer and circulation of energy and matter.

*Emulsification:* The process whereby oil is incorporated into the medium of concern, usually water, in the form of small droplets. Emulsions in water can either be oil in-water or water-in-oil, formed as a result of wave actions.

*Endpoint:* Response of a natural resource or service to a contaminant such as oil in the field or laboratory.

*Environmental Setting:* The total natural background of a site, including its physical, chemical, and biological components.

*Ephemeral:* The physical or biological components of the environment that are short lived or transitory.

*Evaporation:* The single most important weathering process for the first several days of an oil discharge. Results in a loss of the lighter fractions through volatilization from petroleum products (e.g., benzenes, naphthalenes).

*Fate:* The disposition of a contaminant such as oil in various environmental media as a result of transport, transformation, and degradation.

*Fingerprinting:* An analytical process of characterizing a contaminant such as oil to determine if an unknown sample in the environment is the same as that from the source.

*Grab:* A distinct sample.

*Habitat:* The area that supports a given organism, population, or community.

*Histopathology:* The study of tissue responses to injury.

*Historical Data:* Data that are collected for a natural resource and/or service that is spatially or temporally discontinuous.

*In-Situ:* Performed or observed in the environment of concern.

*Intertidal:* The region between highest and lowest tide lines (i.e., that region covered with water at high tide and exposed at low tide) in a marine, estuarine, or tidal freshwater environment.

*Lesion:* A cellular injury to an organ or area of tissue that may result in an impairment or loss of function.

*Lethal:* Causing death by direct action (i.e., cessation of all visible signs of biological activity).

*Lipophilic:* Having a strong attraction for fats.

*Metabolite:* A substance produced by or taking part in metabolism.

*Natural Resource Damage Assessment (NRDA):* The process of collecting and analyzing information to evaluate the nature and extent of injuries resulting from an incident, and determine the restoration actions needed to bring injured natural resources and services back to baseline and make the environment and public whole for interim losses.

*Necrotic:* Dead or decaying tissue.

*Neat Oil:* Fresh, unweathered oil.

*Neoplasm:* An abnormal growth of tissue (e.g., tumor).

*Organism:* An individual animal or plant having diverse parts that function together as a whole to maintain life and its activities.

*Perishable*: The biological substances likely to deteriorate if not collected immediately.

*Petrogenic*: Oil or petroleum derived.

*Photo-oxidation*: Transformation of petroleum hydrocarbons through an autocatalytic free-radical chain reaction through the use of natural sunlight.

*Population (biological)*: A group of organisms of the same species, generally occupying a contiguous area, and capable of interbreeding.

*Pour Point*: The lowest temperature at which oil will flow in the medium of concern, usually water, under specified conditions.

*Precise (data)*: The degree of agreement between independent measurements as a result of repeated applications of a method under specified conditions (i.e., closeness of replicate measures).

*Protocol*: A scientific, economic, legal, or regulatory accepted procedure used as guidance to implement an activity.

*Pyrogenic*: Combustion-derived.

*Quadrat*: A sampling plot, usually one square meter, used to study organisms.

*Quality Assurance (QA)*: The total integrated program for assuring the reliability of collected data.

*Quality Assurance Project Plan*: An orderly assemblage of detailed and specific procedures that delineates how data of known and acceptable quality are produced for a specific project or study within the NRDA.

*Receptor*: A natural resource and/or service or component of that resource and/or service that may be adversely affected by a contaminant such as oil.

*Reference*: A natural resource or service that is physically, chemically, and biologically similar to that affected by a discharge.

*Replicate*: One of a number of independent observations the total of which make up a sample to determine variability.

*Representative (data):* The degree to which data accurately and precisely reflect the conditions or parameters being sampled.

*Sample:* A selected segment of a population studied to gain knowledge of the whole.

*Sampling:* The process of taking observations of a population.

*Significant:* A difference, at a specified probability level, between or among two or more sampling distributions.

*Solubility:* A measure of oil that can be dissolved in a solvent, usually water. The solubility of oil in water is extremely low, generally less than 5 ppm. Solubility is an important measure in relation to the potential toxicity of hydrocarbons to biota.

*Specific Gravity:* The ratio of the mass of the oil to the mass of an equivalent volume of the water. The specific gravity of an oil is a measure of its density and affects its ease of dispersion. Since most crude oils and refined petroleum products have specific gravities that are less than the specific gravity of water, these oils generally will float on water initially. The only exceptions are certain heavy crudes and residual fuel oils.

*Spreading:* The process whereby oil floating on water increases in area over time. Oil of lower viscosity spreads at a faster rate than that of higher viscosity.

*Spike:* The addition of a known amount of a substance to a sample.

*Statistical Analysis:* The formal mathematical statements of the specific hypotheses to be tested.

*Study Design:* The plan that addresses the level of effort required in implementing an assessment.

*Sublethal:* Below the concentration that directly causes death (i.e., effects on behavior, biochemical or physiological function, and tissue integrity).

*Subtidal:* The region in marine, estuarine, or tidal freshwater environments that is deeper than the lowest tide line, such that it is always submerged at any tidal height.

*Toxicity:* The inherent potential of a contaminant such as oil to adversely affect individual organisms.

*Toxicity Test:* An evaluation of the potential of a contaminant to cause an adverse biological response.

*Transport:* The movement of a contaminant such as oil from one location to another.

*Uncertainty:* The total variability in data collection and analysis, including systematic (human bias) and random errors.

*Variable:* A measurement or observation of an attribute characteristic of a natural resource or service of interest.

*Variability:* The difference between replicate measurements or observations (i.e., within sample variability) or between sample statistics (i.e., between sample variability).

*Vertical Shear Profiles:* The physical condition where current velocities (i.e., both speed and direction) vary with depth. A plot of current velocity as a function of depth is a vertical shear profile.

*Viscosity:* The measure of the flow resistance of the oil. Viscosity is important in terms of its environmental fate and effects. Viscosity of oil decreases rapidly with an increase in temperature. Viscosity increases as oil weathers since low molecular weight, volatile fractions are lost most rapidly.

*Volatility:* The degree to which fractions of oil evaporate. Volatility is measured by vapor pressure.

*Weathering:* The alteration of the physical and chemical properties of discharged oil through a series of natural processes which begin when the discharge occurs and continue until the oil is removed. Major processes which contribute to weathering include evaporation, dissolution, photo-oxidation, emulsification, and biodegradation.

*Xenobiotic:* A foreign chemical or substance, such as discharges of oil, not produced in nature nor normally considered a constitutive component of a specified biological system.